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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/081,603 | 02/21/2002 | Stein Inge Pedersen | 57.0422 | 9598 |

7590 03/27/2006

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| EXAMINER | |
|---|---|
| PATEL, SHEFALI D | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2624 | |

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/081,603 | PEDERSEN, STEIN INGE | |
| | Examiner | Art Unit | |
| | Shefali D. Patel | 2621 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *21 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-12 and 15-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 15-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 February 2006 has been entered.

### *Response to Arguments*

2. Applicant's arguments, see Remarks (on page 7), filed on 21 February 2006 and Remarks (on page 6-10) filed on 28 December 2005, with respect to the rejection(s) of claim(s) 1-31 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sun et al. (US 6,731,799).

### *Response to Amendment*

3. The amendment to claim 31 overcomes the rejection made under 35 U.S.C. 101.

4. Claim 14 is now cancelled, the rejection under 35 U.S.C. 112 is withdrawn.

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 18-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 18 recites the limitation "measures of confidence" in line 1 of claim 18. There is insufficient antecedent basis for this limitation in the claim. It is unclear what measures of confidence in claim 1 is claim 18 related to.

Dependent claims 19-22 are rejected for the same reason.

*Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-2, 4, 6-7, 11-12, 14, 24, 26, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishisaka (US 6,289,126) in view of Sun et al. (hereinafter, "Sun") (US 6,731,799).

Note: a cell is construed as a pixel.

With regard to **claim 1** Ishisaka discloses a method of extracting desired features from a cellular image (determining a boundary of an object in an image at col. 4 lines 62-67, col. 5 lines 33-38, col. 8 lines 57-63) comprising the steps of: (a) Selecting an initial cell within said image (selecting an initial pixel at col. 9 line 63 to col. 10 line 14); (b) Selecting an additional cell, near said initial cell, appearing to be associated with a desired feature (selecting pixels in a "chain direction" at col. 10 lines 15-37); (c) Repeating step (b) for further cells, near at least one of said previously selected cells, appearing to be associated with said feature, until selection termination criteria are satisfied (col. 13 lines 54-60), and (d) Repeating steps (a) through (c) for other initial cells (col. 16 lines 1-17).

Ishisaka does not expressly disclose updating an electronic pheromone value associated with the cell. Sun discloses this at col. 13 lines 1-42. Please note the steps 187 and 189 in Figure 13 and its respective portion in the specification for updating a current pixel value depending on the prior knowledge of the initial pixel value. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Sun with Ishisaka. The motivation for doing so is to monitor physical motion and estimating a boundary by detecting (extracting) background model as suggested by Sun at col. 3 lines 1-17. Therefore, it would have been obvious to combine Sun with Ishisaka to obtain the invention as specified in claim 1.

With regard to **claim 2** Ishisaka discloses image as 2D image and cells as pixels (col. 9 lines 55-62).

With regard to **claim 4** Ishisaka discloses image being noisy in the background at col. 1 lines 60-64 and that the features (i.e., boundaries) are weakly defined because Ishisaka discloses that sometime in the processes of chain code direction, the linking pixel may not be found at col. 8 lines 22-26.

With regard to **claim 6** Ishisaka discloses data used to create said cellular image has been pre-processed to enhance the desired features in the cellular image (the image is enhanced so that features such as blood, cell, etc. can be visible in the image at col. 6 lines 13-53).

With regard to **claim 7** Ishisaka discloses initial cells are selected in step (a) by subdividing said cellular image into blocks (divided into 8x8, col. 6 lines 37-45) and selecting cells within said blocks having maximum values of an objective function (selecting blocks with pixel value 1 being the max value (as oppose to value '0' in the background) at col. 6 lines 54-57, col. 8 lines 35-47).

With regard to **claim 11** Ishisaka discloses the further cells are located within a tracing viewfield associated with at least one of said previously selected cells (the further cells are located within the 8x8 window as seen in Figures 10-13).

With regard to **claim 12** Ishisaka discloses the selection of cells in step (c) is positively influenced by the previous selection of said cells during previous iterations of step (c) (col. 13 lines 54-66).

With regard to **claim 14** Ishisaka discloses steps (a) through (c) are repeated al least hundreds of times (col. 16 lines 1-17).

With regard to **claim 24** Ishisaka discloses faults as particles in blood or a cell to be subjected to inspection at col. 6 lines 21-24.

With regard to **claim 26** Ishisaka discloses a CRT display device 5 at col. 6 lines 6-7.

**Claims 30-31** recites identical features as claim 1 except claim 30 is a computer system/computer program on a computer readable medium claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 30. Applicant's attention is further invited to Figure 1 of Ishisaka where a computer system is disclosed.

10. Claims 3, 5, 8-10, 15-17, 23, 25, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishisaka (US 6,289,126) in view of Sun et al. (hereinafter, "Sun") (US 6,731,799) as applied to claims 1-2, 4, 6-7, 11-12, 14, 24, 26, and 30-31 above, and further in view of Ross et al. (hereinafter, "Ross") (US 6,608,628).

With regard to **claim 3** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose the image being a 3D image. Ross discloses a 3D image at col. 4 lines 17-20. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka and Sun. The motivation for doing so is to use a 3D image (as in Ross) instead of 2D (as in Ishisaka) to get the depth of the object in an image to determine the orientation as well as the 2D features. Therefore, it would have been obvious to combine Ross with Ishisaka and Sun to obtain the invention as specified in claim 3.

With regard to **claim 5** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose plurality of features intersect and are extracted from image as different objects. Ross discloses plurality of features intersect and are extracted from image as different objects (col. 7 lines 52-63 and col. 9 lines 19-26). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to extract features without losing surface integrity or topography as suggested

by Ross at col. 7 lines 59-63. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 5.

With regard to **claims 8-10** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose orientation of an object in an image. Ross discloses orientation of an object in an image at col. 11 lines 58-66. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to get the depth of the object in an image by determining the orientation as well as the 2D features. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claims 8-10.

With regard to **claims 15-17** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose segments of an object that are later merged. Ross discloses segments of an object that are later merged at col. 9 lines 29-54. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to merge segments on the boundary so that the pieces appears as a 3D solid when manipulated as suggested by col. 9 lines 29-34. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claims 15.17.

With regard to **claim 23** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose seismic, MRI, and CT data. Ross discloses seismic, MRI, and CT data at col. 5 lines 47-56 and col. 4 lines 25-27. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to capture images of human or geographical surface in three-dimensional

image. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 23.

With regard to **claim 25** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose geologic horizons. Ross discloses geologic horizons at col. 5 lines 46-56. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to gain new insight by bisecting or otherwise cut into other types of scientific reconstruction as suggested at col. 5 lines 50-53. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 25.

With regard to **claim 27** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose stereo display. Ross discloses stereo display at col. 15 lines 1-5. Note, that the stereo display is needed to display a 3D image being processed. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Ross with Ishisaka. The motivation for doing so is to display the images of human or geographical surface in three-dimensional image. Therefore, it would have been obvious to combine Ross with Ishisaka to obtain the invention as specified in claim 27.

With regard to **claims 28-29** Ross discloses features displayed on a stereo net according to the orientations of the feature and allowing an interpreter to interactively edit using display at col. 11 line 58 to col. 12 line 5.

11. Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishisaka (US 6,289,126) in view of Sun et al. (hereinafter, "Sun") (US 6,731,799) as applied to claims 1-2, 4, 6-7, 11-

12, 14, 24, 26, and 30-31 above, and further in view of DeYong et al. (hereinafter, "DeYong") (US 6,577,757).

With regard to **claims 18-22** Ishisaka discloses a method of extracting desired feature from an image as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Ishisaka does not expressly disclose measure of confidence associated with features. DeYong discloses this in Table 10 at col. 29 and also at col. 30 lines 7-63. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of DeYong with Sun and Ishisaka. The motivation for doing so is determine whether the next point in the feature is on the object or outside and the highest measure of confidence tells one that that point should be part of the feature as suggested by DeYong at col. 6 lines 21-40 and col. 30 lines 63-67 as seen in Figure 25A. Therefore, it would have been obvious to combine DeYong with Sun and Ishisaka to obtain the invention as specified in claim 18.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel
Examiner
Art Unit 2621

14 March 2006

JINGGE WU
PRIMARY EXAMINER